

4 - PASSIVE RECREATIONAL FACILITIES EXEMPTION

PURPOSE:

The purpose of this chapter is to provide guidance to property owners on the land disturbance exemption allowed in the 100-foot wide buffer for passive recreation facilities such as boardwalks, trails and pathways. Homeowner creation of trails and pathways generally do not have the potential for as great an impact on the buffer as do public facilities; therefore, this chapter primarily addresses projects, such as community parks and recreation facilities, that are likely to be used by large numbers of people on larger parcels, rather than individual residential properties. However, the design information is also appropriate for homeowner trails and pathways, which are also allowed by the Regulations.

REGULATIONS:

§9 VAC 10-20-130.2 states that:

“The following land disturbances in Resource Protection Areas may be exempt from the criteria of this part provided that they comply with subdivisions a and b below of this subsection: (i) water wells; (ii) **passive recreation facilities such as boardwalks, trails and pathways**; and (iii) historic preservation and archaeological activities.

- a. Local governments shall establish administrative procedures to review such exemptions.



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b. Any land disturbance exceeding an area of 2,500 square feet shall comply with the erosion and sediment control criteria in subdivision 6 of §9 VAC 10-20-120.”

DISCUSSION:

Many public parks and recreational facilities are located in land adjacent to riparian features, as are some facilities owned by private, homeowner community associations. Since these land areas may have limitations for development, they are often donated by developers as public or community parks systems and are developed as public open space.

The Bay Act Regulations restrict recreational uses within the 100-foot wide buffer to passive recreation facilities, including trails, boardwalks and paths. The Department generally considers passive recreation to be non-motorized activities such as walking, bike riding, picnicking, hiking, sun bathing and bird watching. This includes motorized devices required by physically impaired individuals to access and enjoy any passive recreation facilities. Passive recreation does not include obtrusive activities that have significant adverse impacts to natural, cultural, open space, or agricultural values. Passive recreation would also not include organized sports facilities such as baseball diamonds, football fields, or soccer fields.

If a locality chooses to grant exemptions to the land uses listed in §9VAC 10-20-130.2, it must establish a review process to determine whether a proposed use or activity qualifies for an exemption from the local Bay Act program. This local review must also verify that any proposed uses in the buffer do not conflict with the spirit or intent of the Act and meet the performance criteria in §9 VAC 10-20-120 for:

- Minimization of land disturbance
- Preservation of indigenous vegetation
- Maintenance of best management practices
- Minimization of impervious cover
- Requirement of a plan of development for land disturbing activity over 2,500 square feet, and compliance with the requirements of the local erosion and sediment control ordinance

Local review process

The Regulations require all local governments to develop an administrative procedure to review proposals to determine if they qualify for an exemption. The Department recommends that the local review procedure requires the submittal of an application that includes the following information:

- The limits of the 100-foot buffer
- The nature of the proposed land use
- The location of any proposed structures, trails, boardwalks, paths, etc.
- The existing and proposed topography of the site
- The limits of clearing and land disturbance
- Existing vegetation and proposed vegetation removal
- Area of impervious surface proposed
- Composition of surface materials used (mulch, gravel, concrete, planks, etc.)
- Dimensions of proposed paths, trails or boardwalks
- A water quality impact assessment for any land disturbing activity.
- Proposed erosion and sediment control measures for any land disturbing activity over 2,500 square feet.
- Proposed plantings or other mitigation measures

The locality should review the proposed facilities and determine whether or not an exemption is warranted. Because the term passive implies low impact and minimum disturbance to natural areas, the locality should not grant an exemption for a project that proposes excessive land disturbance, installation of large amounts of impervious surface, or the removal of a significant amount of buffer vegetation.

If the locality approves the exemption request and all other applicable regulations or permit conditions are satisfied, the applicant may proceed with construction of the project. If the locality concludes that the nature of the land use is not consistent with the definition of passive recreation or if the project has the potential to cause negative impacts to the buffer and the quality of the adjacent aquatic resource, the applicant must revise the project plan or the local government should deny the exemption request.

Passive recreation includes...	Passive recreation does not include...
<p>Hiking</p> <p>Biking</p> <p>Picnicking</p> <p>Wildlife viewing</p> <p>Public boardwalk or trail use</p> <p>Fishing</p>	<p>Organized sports facilities and ball fields</p> <p>The use of motorized vehicles, such as golf carts, motorcycles, motor boats or all-terrain vehicles (ATVs)</p> <p>Structures such as pools, decks or gazebos</p> <p>Boat ramps, docks, piers, or marinas</p> <p>Any activity that contributes to erosion, causes significant vegetation loss, or involves the installation of excessive amounts of impervious surfaces</p>

Pathways, trails and boardwalks

Citizens will use public open space, whether or not facilities exist to accommodate public use. Paths will be made towards a favorite fishing hole or bird-watching post. Best management practice requires planning for those uses and mitigating the effects of that development on the functions of the buffer through appropriate planning and design of facilities.

There are many fine publications that provide details on planning, designing, and constructing public trails, such as the Virginia Department of Conservation and Recreation's *The Virginia Greenways and Trails Toolbox*, the U.S. Forest Service *Trail Construction and Maintenance Notebook*, 2000 edition, and *Planning Trails With Wildlife In Mind*, Colorado State Parks – Trails Program, which can be found at the web site <<http://www.parks.state.co.us/home/publications.asp>>. Therefore, only aspects that are related to buffer issues will be discussed here.

“Well designed trails take advantage of the natural drainage features, and are low-maintenance trails that meet the needs of the user.”¹

Paths and trails for passive recreation are exempt from the development criteria for RPAs, but they should be designed to minimize the disturbance to the vegetation, groundcover, and soils within the buffer to maintain water quality and protect shorelines and

stream banks. Careful planning based on an analysis of natural features and characteristics will determine the best location and design of trails and paths. Care should also be taken to avoid sensitive habitat such as breeding areas, habitats of local significance, threatened or endangered species, or natural heritage areas.

Placement and design of paths, trails, and walkways

“There are three factors to consider: environmental suitability of a particular use, the intensity of use, and the design and development of the trail tread.”²

Trails and paths through public parks serve many different purposes and users. A large natural area, such as a state park far from urbanized areas, may not have frequent, numerous visitors, whereas a path in an urban park may provide access to the shore, a pier or boardwalk and get constant use by large numbers of citizens. The variety of users and activities necessitate different types of paths.

Proper design and placement of paths is necessary to meet the needs of the user while maintaining the integrity of the riparian buffer. Placement of the trail or path is important to assure that it is located in the least sensitive areas. If a trail or path is not adequate for the use, failure of the path may compromise the buffer. The frequency of use and type of user should dictate the size of the path. Clearing should be minimized as much as possible, and pruning should be kept to only that necessary to maintain safe usage. Paving should be adequate to accommodate the quantity and frequency of use expected and appropriate for the level of maintenance that will be available to prevent or correct trail failure. Development should be accomplished with the least destructive equipment and construction methods feasible.

Environmental suitability

Location

Preferably, the majority of a public trail or path will be located outside of the 100-foot buffer. However, when the path does enter into the buffer to reach the shoreline or stream, it should

be located so as to minimize impact on the buffer. Soils, slopes, drainage and vegetation will determine the best location for the portions of a path that are located within the buffer.

When a trail must be placed within the buffer, the area 75-100 feet inland from the water's edge would be the best location for the majority of the trail. The path may reach the water through areas whose physical characteristics are less susceptible to adverse impacts. Sensitive soils and steep slopes should be avoided. The path should take advantage of features in the area between 25-75 feet landward, such as bluffs or rock outcroppings, that may provide views to the water without needing to remove vegetation or encroach into the 25 foot zone closest to the water, which is typically the most critical portion for stream protection.

The area from the water's edge to 25 feet inland should see only minimal use with occasional access to water, ideally in areas least likely to be adversely impacted. This 25 foot area is important for stream bank or shoreline stability. Roots of woody vegetation in this area help bind the soil while the canopy helps intercept rain-drops from hitting the soil causing erosion. The leaf litter, twigs and duff supply organic matter for denitrification and for food to the smaller organisms on the forest floor and in the stream. The trees in the area help moderate stream temperature, encourage infiltration of runoff and remove or convert pollutants before they reach the surface waters.

Paths should be kept as short as is feasible within this portion of the buffer to give a direct access to the water. Minimize the impact by taking advantage of terrain, working with natural features and avoiding existing trees. Alternate routes should be carefully evaluated to determine the path location that would minimize impact to soils and vegetation in this portion of the buffer,

Soils

One of the most important structural factors, determining both placement and composition of a trail or pathway, is the nature of the native soil.³ Soil analysis should be part of any planning process to determine the suitability of the soil for development. Load-bearing ability, permeability and soil composition are good indications of the ability of the soil to sustain trails or the need to devise alternative trail designs to overcome the difficulties.

Soft, waterlogged and unsuitable soils are frequently found in riparian buffers. It is preferable to avoid these types of soils, or limit the placement of paths in these areas to the shortest length and

width feasible. In areas where such soils cannot be avoided in locating a trail, the use of geotextile fabrics or the installation of a boardwalk may be appropriate to minimize the possibility of trail failure.⁴

In some areas flooding may have left a deposit of sand or other suitable material that is appropriate for trail development but is within the 25 feet closest to the water. An analysis of the potential advantages of using this area for trail development should be weighed against the potential for damage to the water quality by overuse and failure of the trail. If the intensity of the use or potential for misuse is high, the trail should probably be located elsewhere.

Slopes

Slope, or the amount of rise in elevation over distance, is also important in determining whether or not a path or trail may have a large or small impact on the buffer. It is better to locate a path to avoid steep slopes. Trails should follow the contours of the land rather than run perpendicular to the slope. A sloping path cutting straight through the buffer towards the stream bank or shoreline is more likely to concentrate storm runoff and develop problems. The increased speed of the concentrated flow prevents infiltration and stimulates erosion. This keeps the buffer from fulfilling its function of reducing runoff and erosion and preventing pollutants from reaching the water.

While paths on topography sloping 5 percent or less may withstand erosion on stable soil, paths located on steeper slopes should take advantage of natural land features and vegetation to minimize the potential impact. Paths with out-slopes can accommodate the intended user yet allow water to naturally drain off the path surface. Careful design should result in pathway surfaces and drainage solutions that will prevent negative impacts on water quality.

Stream crossings

Keep stream crossings to a minimum. Make crossings compatible with the existing stream condition and surroundings. The crossing should take place where there is as little disruption of the bank as possible. Ideally the crossing would take place (1) on a well-defined stream channel, (2) at the point of minimal channel width, (3) where there is a flat stream gradient, and (4) where there

NOTE:

Stream crossings may require permits from :

- **Army Corps of Engineers (ACOE)**
- **Department of Environmental Quality (DEQ)**
- **Virginia Marine Resources Commission (VMRC)**

or other federal, state, local agencies or boards depending upon the location and nature of the project.

are stable slopes on the uphill trail grades on both sides of the stream crossing.⁵ If in an area where there is infrequent use of a crossing, stepping-stones may provide the least disruptive, most effective solution. Depending upon the types of users and the frequency of use anticipated, the crossing may require more structural solutions, from a simple shallow stream ford or log crossing to some type of bridge.

Shoreline access and wetlands

Access to the shoreline may include crossing marshes or other sensitive wetlands. Identification of sensitive areas such as unstable shorelines or bluffs should be part of any analysis, and those areas should be avoided. Limit access to areas that can handle the level of visitation proposed. If a sensitive shoreline is the only choice for access, boardwalks, overlooks or other structural solutions might provide appropriate protection for the area. Any access provided in a wetland, marsh or tidal area requires a permit from the local wetlands board.

Any walkway or boardwalk should be planned and designed to minimize impacts on shoreline stability and vegetation as well as on aquatic resources such as submerged aquatic vegetation or intertidal vegetation. Wetlands and marshes provide ample opportunities for education, so a carefully planned access gently placed in the landscape may be worth the extra expense to engineer and construct a suitable solution.

Intensity of use

Paving

In conjunction with soil characteristics, slopes and drainage patterns, the intensity of use is the major factor in determining the type of surfacing needed. A hiking trail in a natural area that is not intensively used may only require a natural surface, while a path in an urban park, or a well-used community recreational path may need some type of harder surfacing than native soil, leaf litter, or mulch. A community pedestrian path in a small subdivision might not be expected to have heavy use, so a mulch surface may be sufficient to prevent erosion. Ideally, the path should have the least impervious surfacing that will withstand the proposed level of use.

Paths that have frequent use, unstable soils, or slopes greater than 5 percent may require the use of additional material to prevent erosion. If a paving material is needed to protect exposed soil, use mulch, shell, gravel, stepping-stones or other permeable material. Paths with heavy pedestrian use or multi-use trails that may also accommodate bicycles or other uses may need more structural paving. ADA requirements may also indicate a harder surface for the path, such as a compacted granular stone, which is less obtrusive than asphalt. Again, the path should have the least impervious surfacing that will withstand the proposed level of use.

Design and development of trail tread

Clearing

Keep clearing for paths, trails or walkways to the minimum necessary to develop and maintain them. Ideally, paths and walkways should wind around existing mature trees rather than requiring their removal. Try to locate paths through existing open areas, or areas where undesirable, invasive vegetation may be removed, (e.g. Japanese honeysuckle, ivy, or tree of heaven). Limit vertical clearing and pruning of branches and other obstacles from the pathway to only that necessary for the safety and comfort of users.

For a mile of trail, a ten-foot wide swath of clearing comprises almost one and a quarter acres of land and is ten percent of the vegetated buffer. Paths should be kept as narrow as possible to fulfill the need of the proposed user based on the carrying capacity of the terrain. If the proposed path will require a much wider clearing for construction than the path itself requires, consider keeping the path outside of the buffer, or changing that portion that encroaches into the buffer to less intensive use or smaller size that requires less intrusive construction methods. Should no alternative be possible, the clearing might be mitigated with additional vegetation in the portion of buffer remaining between the path and the water.

The following table represents standards recommended by the Virginia Department of Conservation and Recreation in *The Virginia Greenways and Trails Toolbox*. (2000).

Summary of Trail Corridor Clearing Standards

Type of Trail	Vertical Clearance	Trail Width	Horizontal clearance beyond trail width
Hiking	8 feet	2 feet single lane 5 feet double lane	2 feet
Biking	8 feet	4 feet single lane 8 feet double lane	1 ft trees/rocks 3 ft limbs/brush
Mountain Biking	8 feet	2 feet single lane 5 feet double lane	1- 2 feet single lane 2 feet double lane
Equestrian	10 feet	5 feet	1 feet trees/rocks 3 feet limbs/logs
Multiple Use	10 feet 8 feet if no equestrian	8 feet 10 feet if heavy use	2 feet

Size of paths

Paths, trails or walkways in the buffer should be no wider than necessary for the required use. When a path must encroach into the buffer, the plan should attempt to limit uses to those that are low-impact and will require the minimum width and associated clearing necessary for the proposed use. Pedestrian paths could be made into one-way single use paths as they encroach into the 25 feet closest to the water and quickly return to the outer landward 50 feet of the buffer. Vegetation, groundcover, leaf litter or mulch should be added in the cleared areas to assure the stability of the disturbed buffer floor, help retard runoff, and prevent erosion. ADA requirements for paths (no less than 5 feet wide) may also apply to community facilities.

Any path or trail designed and intended for passive use within the buffer must be maintained to prevent failure and subsequent water quality impairment. The design of the path should be appropriate for the use or uses, and capable of handling the expected use. Should a more intense use, such as mountain biking, result in the failure of the trail and/or degradation of the water feature due to erosion, attempts should be made to: (1) prevent such use, (2) provide a suitable trail for such use elsewhere, or (3) if appropriate, upgrade the trail to withstand the more intense use.

A well-designed path or trail in and of itself should not be a detriment to water quality. However the impact on the buffer can be significant over long distances through the buffer, and water quality impairments may result.

The characteristics of the site should determine design

options. If vegetation is intact and dense in the 25 feet adjacent to the water, and leaf litter and groundcover are in sufficient quantity to prevent erosion, additional design measures may not have to be employed to assure adequate water quality protection. Sensitive soils, or other characteristics that may cause erosion, may require appropriate management measures to retard runoff, prevent erosion and filter non-point source pollution. An engineered solution may be necessary to assure that the trail will not cause deterioration of the buffer functions.

CONCLUSIONS:

- If a locality chooses to grant exemptions for the land uses listed in §9VAC 10-20-130.2, it must establish a review process to determine whether a proposed use or activity qualifies for an exemption from the local Bay Act program.
- Proposed facilities that do not meet the Board's interpretation of "passive recreation" should not be given exemptions from local Bay Act requirements.
- Recreation facilities that involve excessive land clearing, disturbance of vegetation, or large expanses of impervious cover are not considered passive and should not qualify for an exemption.
- All facilities that disturb more than 2,500 square feet of land must comply with the local erosion and sediment control ordinance.
- Passive recreation facilities should be located outside the 100-foot buffer, where feasible.
- Passive recreation facilities should accommodate all proposed users without straining the carrying capacity of the particular terrain, negatively affecting water quality, or impacting the nearby aquatic resources.
- Passive recreation facilities should be designed and located to avoid sensitive slopes, soils, and habitats. If a locality determines that a facility is causing erosion problems, the use may be stopped until the erosion is eliminated and the soil stabilized.
- Ideally paths should be located primarily within the outer 25 feet of the buffer (from 75-100 feet landward of the shore or stream bank) with occasional access to the water through carefully located corridors. Any path

located in the landward 50-100 feet of the buffer should only be in areas capable of handling the intensity of use proposed.

- Paths (including trails and boardwalks) within the 100-foot wide buffer should be kept to the minimum width feasible.
- Paths should blend into the landscape, taking advantage of the terrain and working with contours to minimize impacts to the 100-foot buffer and the potential for erosion.
- Paths should be located to minimize removal of vegetation and to conserve the forest canopy. Paths should meander around existing mature trees rather than displacing them.
- Ideally, native trees, shrubs and groundcovers should be planted along the sides of paths to control runoff, provide shade, and prevent soil erosion.

¹ U.S. Forest Service. Trail construction and maintenance handbook, 2000 edition. P. 9.

² Flink, Charles A. and Robert M. Searns. *Greenways: A guide to planning, design and development*. The Conservation Fund. 1993. Island Press, Washington, D.C., p.201.

³ Flink, p.203.

⁴ Flink, pp 203-204.

⁵ US Forest Service *Trails Management Handbook*. FSH 2309.18.3.12d Stream Crossings. <<http://www.fs.fed.us/im/directives/fsh/2309.18/2309.18,3.txt>>